



## African Indigenous Management of Water Catchment Areas: Contemporary Lessons for Sustainable Development in Meru - Kenya

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### Abstract

African indigenous practices had specific religious significance in managing water resources, where everything had a religious aspect. In this sense, water catchment areas were treated sacred. People in Meru held religious events under designated trees. This way harvesting trees and other natural resources was approached with religious reverence, taking care to conserve the ecological environment leading to sustainable development. There are a number of challenges facing the contemporary exploitation, protection and preservation of natural resources, including at the water catchment areas. This endangers sustainable community development. Therefore, the purpose of the study was to examine the contemporary lessons that can be drawn from the African indigenous management of water catchment areas. Literature on African religious environmentalism and the theory of critical institutionalism including concepts of path-dependence which stipulate that people's behavior depend on past practices passed on through teaching and mentorship were reviewed. The institutional bricolage addresses the way community institutions evolve through creative efforts of mixing the old practices with the new ways of resolving the contemporary challenges in sustainable community development. The study adopted mixed methods with quantitative and qualitative techniques of field data collection and analysis. The population included Members of the Njuri Ncheke group in Meru, religious leaders, professionals, and community stakeholders. Purposeful cluster sampling was used to ensure equal coverage of the population groups in Meru County. The study found that many water catchment areas and rivers were drying up, with increased deforestation, large-scale irrigation water harvesting, and pollution of the water bodies. The study concluded that there were many religious ethical values to be learnt from African indigenous management of water catchment areas, and recommended further study and action on religious ethical stewardship of water and environmental resources toward sustainable development.

**Key terms:** Water catchment areas, religious environmentalism, critical institutionalism, path-dependence, bricolage, and sustainable development.

## Introduction

African indigenous practices had specific religious significance in managing water resources, where everything had a religious aspect. In this sense, water catchment areas were treated sacred because people in Meru held religious events under designated trees and in specific places. This created a sense of religious environmentalism where indigenous religious beliefs and practices promoted the protection of environment and water catchment areas. Harvesting trees and other natural resources was approached with religious reverence, taking care to conserve the ecological environment leading to sustainable development (Mulwa, 2010). Therefore, this paper applies the concepts in critical institutionalism to investigate lessons that can be drawn from the indigenous knowledge and practice of protecting water catchment areas toward sustainable community development (Hall, et al 2014; Cleaver, 2012).

## Problem Statement

There are a number of challenges facing the contemporary unregulated harvesting, protection and preservation of natural resources, including at the water catchment areas. It can lead to a tragedy where the natural resources like tree-forests and water bodies are overharvested beyond replenishing capacity, leading to scarcity and human suffering as Hardin predicted in his theory of the tragedy of commons (Hardin, 1968). This endangers access to water, food security and sustainable community development. Therefore, the purpose of the study was to examine the contemporary lessons that can be drawn from the African indigenous management of water catchment areas (Carrafiello, 1995; Hulse, 2007).

## Objectives

The objectives of the study were to: study the contemporary trend in conservation of water catchment areas in Meru County; examine human activities affecting water catchment areas; investigate the challenges facing conservation of water catchment areas; and evaluate role of the indigenous knowledge of protecting water catchment areas.

## Related Literature and Theoretical Background

Literature on African religious environmentalism and the theory of critical institutionalism including concepts of path-dependence which stipulate that people's behavior depend on past practices passed on through teaching and mentorship were reviewed. The concept of bricolage addresses the way community systems and structures evolve through creative efforts of mixing the old practices with the new ways of resolving the contemporary challenges in sustainable community development (Cleaver & De Koning, 2015).

## Introduction to African religious environmentalism in context of Meru County, Kenya

The Meru people considered natural resources as the creation of God to sustain life. Natural resources like trees in forests, water bodies, agricultural land and animals were perceived as the means through which God gave people provisions for survival. This way, the indigenous people of Meru believed that the natural resources had a spiritual bearing in the manner of religious environmentalism. The daily activities revolved around human interaction with nature and the natural resources, and were perceived to have spiritual connection. The natural resources were treated with reverence, respect and adoration, because they were the embodiment of God's work

and loving provision for people. This way, people prayed before cultivating land, cutting trees or while fetching water (De Koning, 2014).

The people of Meru transmitted indigenous moral values relating to protection of natural resources through taboos and storytelling. Borona (2015) posited that Meru communities had specific areas that were regarded as sacred, including designated places in forests, rivers, water sources or mountains. The sacred sites were believed to be the abode of the ancestral spirits and this made the people responsible for their conservation. The Njuri Cheke was a council of elders in Meru who had the authority to settle disputes, and with religious, political and legal mandates. The place where Njuri Ncheke members met were shelters prepared mostly at the edge of the forest. This place was treated with reverence, enhancing protection of the environment. The religious rituals, like sacrifice and prayer for rainfall, were conducted in the forests, sometimes around a water catchment site. The specific place was handled with reverence, comparable to the way believers today revere churches, mosques or temples. Preservation of the forests ensured that trees were not cut anyhow, and this enabled conservation of water catchment areas and preservation of environmental integrity where people lived in harmony with nature, creating a sense of sustainability (Ibid).

### **Critical institutionalism in protection of water catchment areas in Meru**

Critical institutionalism is a theory which deals with the way communities facilitate relationships between people and natural resources, and in the case for this paper, protection of water catchment areas (Hall, et al, 2014). This includes the way community systems and structures function in the day-to-day activities, their historical formation, the interaction between formal and informal,

traditional and modern arrangements, and the power relations under which they operate (Narayan, 2002; Vargas, 2000). The community institutions evolve gradually, as various values, norms and practices are borrowed or adapted from a community's history or other working arrangements. People draw their motivation to support these community institutions out of a number of individual and collective interests, including economic gain, emotional, moral values and community world view (Freeman, 2007).

This paper builds on two schools of thought in critical institutionalism. The first is the path dependence school which stipulates that people's behavior and conduct depend on the path of past beliefs and practices, which is passed on the subsequent generations through teaching, coaching and mentorship. The second school is that of institutional bricolage, which addresses the way community institutions evolve through creative efforts of mixing the old practices with the new ways of resolving the contemporary challenges in water management. This paper blends the theoretical concepts of these two schools of thought in critical institutionalism, with the practice in the community through research findings on gender-based water management toward food security and sustainable community development (Cleaver, & De Koning, 2015).

### **Path-dependency in Protecting Water Catchment Areas IN Meru County**

The concept of path dependency explains the difficulties in facilitating community's institutional changes in the practice of water management and improved agriculture toward sustainable food security. Path is the way a community structures response to

new challenges based on traditional gender-based practices. Path dependency works in functional and distributional effects of continuous feedback mechanism. The functional effects are the motivational drivers where actors strategize in a manner that reflects and perpetuates the logic of protecting water catchment areas for poverty reduction and sustainable development (Myers, 1999; Donneley, 2007). This way, the community structures pass on the social values, norms, capacities and routines based on the experiences acquired from the former leadership of the water management systems and structures in the community (Sehring, 2009).

### Methodology

The study was a descriptive survey which adopted mixed methods of quantitative and

qualitative techniques of data collection and analysis. The population included Members of the Njuri Ncheke group in Meru, religious leaders, professionals, and community stakeholders. Purposeful cluster sampling was used to ensure equal coverage of the population groups in Meru County.

### Key Findings

This section presents the summary of key findings of the study. The key findings were as a result of data analysis based on the responses of each question in the questionnaire by the sampled respondents. The population included Members of the Njuri Ncheke group in Meru, religious leaders, professional groups and stakeholders. The following is the profile of the sampled respondents and the analysis of data collected during the research study.

*Table 1: Category of the respondent*

Category	Frequency	Percent of the total
Njuri Ncheke members	34	34
Religious leaders	34	34
Professionals & stakeholders	32	32
Total	117	100.0

*Source: Field research, 2017.*

### The contemporary trend in conservation of water catchment areas in Meru County

The study found that the contemporary trend in the conservation of water catchment areas in Meru County was below the expectation. Climate change challenges together with rapid increase of the population made people to encroach water catchment areas with activities like clearing

the water catchment areas for crop farming. This was made more serious because of the arid and semi-arid climatic condition of most of the upper parts of Meru County. For example, when the respondents were asked to rate the contemporary trend in conservation of water catchment areas, the following information was collected:

**Table 2: Rating the contemporary trend in conservation of water catchment areas in Meru County**

Opinion/Rating	Very true	True	Rarely	Not at all
Water catchment areas are well protected	12	22	34	32
Water catchment areas are getting destroyed	38	23	27	12
No efforts to protect water catchment areas	45	36	12	7

Source: Field data, 2017.

From the above table, 34% of the respondents said water catchment areas were well protected in the first option, against 81% who said that there were no efforts to protect water catchment areas in the third option. Those that felt that water catchment areas were getting destroyed were 61% of the respondents, while 27% said this was rarely and 12% said it was not at all. This means that majority of the respondents felt that water catchment areas were getting destroyed in the contemporary human activities. About this, one of the respondents gave the following qualitative information: "These days there are hardly any space left as community land under a swamp where people can graze cattle under public land as it was twenty years ago. Most of those places that used to be public land with swamps for public provision of water and grass are now private land under agricultural use and human settlement. There are frequent droughts, and getting water and livestock pasture is even more difficult."

The above qualitative information reveals a growing discontent among people on the way water catchment areas are being managed. Some respondents attributed this to the growing levels of poverty, and this was followed up by a question on whether the respondents felt that poverty resulted to

destruction of water catchment areas. About this, 48% of the respondents said poverty always resulted to encroachment into water catchment areas, 33% said it mostly did, and 19% of the respondents said it rarely did. A total of about 81% of the respondents said there was a relationship between poverty and protection of water catchment areas. The 19% of the respondents who said that poverty did not result to destruction of water catchment areas explained that the wealth members of the community invested on blue-gum trees or other profit oriented venture for self-gain from water catchment areas, with negative consequences on the environment and the community. Therefore, the next section addresses the question of human activities that affect water catchment areas in Meru County.

#### **Human activities affecting water catchment areas**

The study found that there were various human activities that affect water catchment areas in Meru County. On this issue, when the respondents were asked what they thought were the human activities affecting water catchment areas, the following information was given:

**Table 3: Human activities affecting water catchment areas**

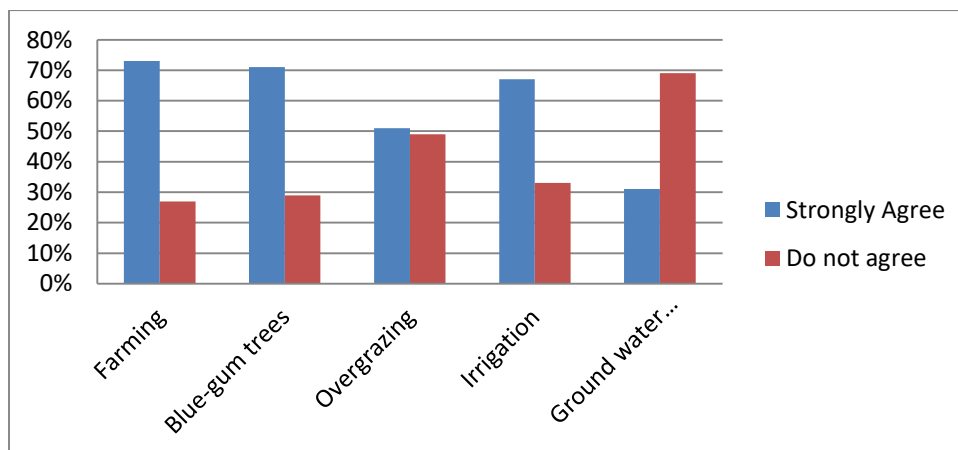
Human activity / rating	Very true	True	Rarely	I don't know
Clearing water catchment area for farming	41	32	10	17
Planting trees that drain water from the catchment area	45	26	13	16
Over-harvesting water for irrigation purposes	26	25	41	8
Overgrazing livestock in water catchment areas	36	28	24	12
Over-harvesting ground water near water catchment areas	10	21	35	34

Source: Field data, 2017.

From the above table, 41% of the respondents said it was very true that clearing of water catchment areas to create ground for crop farming negatively affected water catchment areas, 32% said it was true that it did, and 10% of the respondents said it rarely did. This means that a total of about 73% of the respondents said there was a strong relationship between clearing of water catchment areas for agricultural purposes and conservation. On planting type of trees that drain water from water catchment areas, a total of 71% of the respondents consented to this, while over-

harvesting of water for irrigation purposes was cited as a problem to protection of water catchment areas by a total of 51%. Overgrazing around water catchment areas was acknowledged as a problem by a total of 67%, while over-harvesting of ground water was cited as a problem to the protection of water catchment areas by a total of 31%. This means that more than half of the respondents felt that the cited human activities had negative impact on the process of protecting water catchment areas. This information is illustrated further in the following bar graph:

**Figure 01: Human activities affecting conservation of water catchment areas in Meru County**





Source: Field data, 2017.

From the above bar-graph, harvesting ground water for domestic and agricultural purposes was the one rated by respondents as having less effect on water catchment areas among the cited human activities. All the other human activities are identified as

having negative effect on the efforts to protect water catchment areas. This is related to the next section which addresses the challenges faced in conserving water catchment areas.

### The challenges facing conservation of water catchment areas

Creation When respondents were requested to rate challenges facing the effort to conserve water catchment areas in Meru County, the following information was obtained:

*Table 4: Challenges facing conservation of water catchment areas in Meru County*

Challenge / Rating	Great Challenge	Challenge	Rarely a Challenge	I don't know
Lack of knowledge and skills	42	31	21	6
Lack of the necessary resources	34	36	23	7
Population increase	26	25	23	26
Climate change challenges	46	28	14	12
Profit maximization drive	20	31	25	24
Lack of political and leadership goodwill	38	32	17	13

Source: Field data, 2017.

From the above table, 42% of the respondents said that lack of knowledge and skills necessary for effective conservation of water catchment areas was a great challenge, 31% said it was a challenge, 21% said it was rarely a challenge, and 6% said they did not know if it was a challenge. Lack of necessary resources with which to conserve water catchment areas was cited as a challenge by a total of 70% of the respondents, while population increase was identified as challenge by a total of 51%. Climate change challenges characterized by frequent droughts were cited as a challenge to the

efforts to protect water catchment areas by 74% of the respondents. Profit maximization drive in a capitalistic setting was identified as a challenge to the protection of water catchment areas where people exploited natural resources around water catchment areas without legal or policy regulation. Lack of political and community leaders' goodwill was cited as a challenge to the conservation of water catchment areas by 70% of the respondents. Local capacity building and empowerment were cited as the necessary measures to have community participation in overcoming the above

challenges. About this, one of the respondents to the interview questions on this issue said:

“Climate change challenges and the phenomenon of having water catchment areas dry threaten the availability of water for human and livestock consumption as well as irrigation farming purposes. Most of the people are not aware of the effect that their actions have on the environment and water catchment areas. Therefore, there is need for local community capacity building and empowerment to enable them to participate in protecting water catchment areas.”

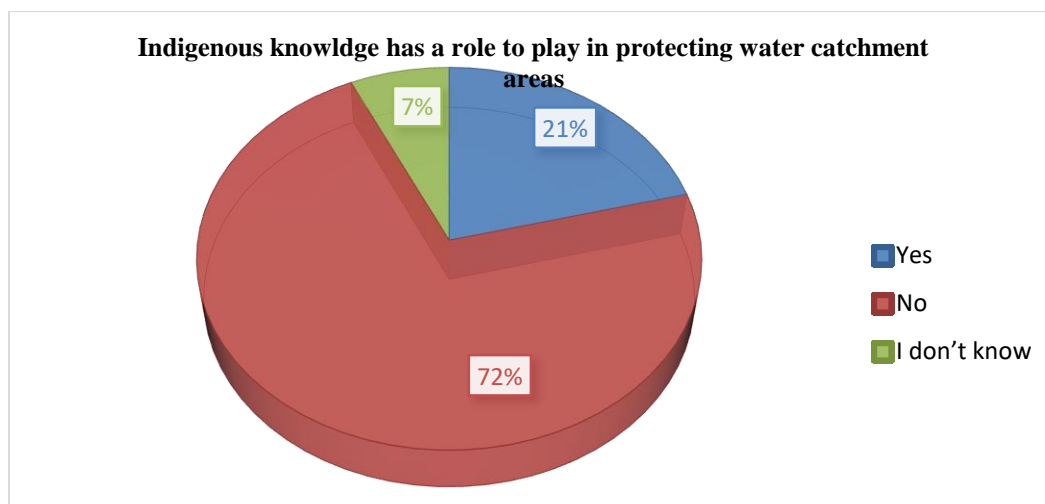
The above qualitative information reveals the reason why a big number of the respondents in table four above said that they did not know about the specific challenges facing the efforts to protect water catchment areas. This emphasizes the need for capacity building and empowerment so that local community members can participate in conserving water catchment

areas toward sustainable community development. This raises the question of the role of indigenous knowledge in the contemporary conservation of water catchment areas, and this is addressed in the next section.

### **Role of the indigenous knowledge of protecting water catchment areas in Meru County**

The study found out that majority of the respondents (72%) were below 40 years of age, and they did not identify with the indigenous perception that nature and natural resources like scenic water catchment areas, forests and water bodies had spiritual bearing and served as the abode of the spirits, requiring to be treated with reverence. The majority were Christians who felt that indigenous knowledge of the Meru people regarding protection of water catchment areas was outdated, mystical or superstitious. This information was further presented in the following pie-chart:

**Figure 02: Role of indigenous knowledge in protecting water catchment areas in Meru County**





*Source: Field data, 2017.*

From the above information, 72% of the respondents said that it was not true that indigenous knowledge had a role to play in protecting water catchment areas. They said that the necessary basic needs in life required working by all means in efforts to provide for the family members, especially the need for food. This finding relates to Marete Dedan Gitari recorded in her graduate degree thesis that:

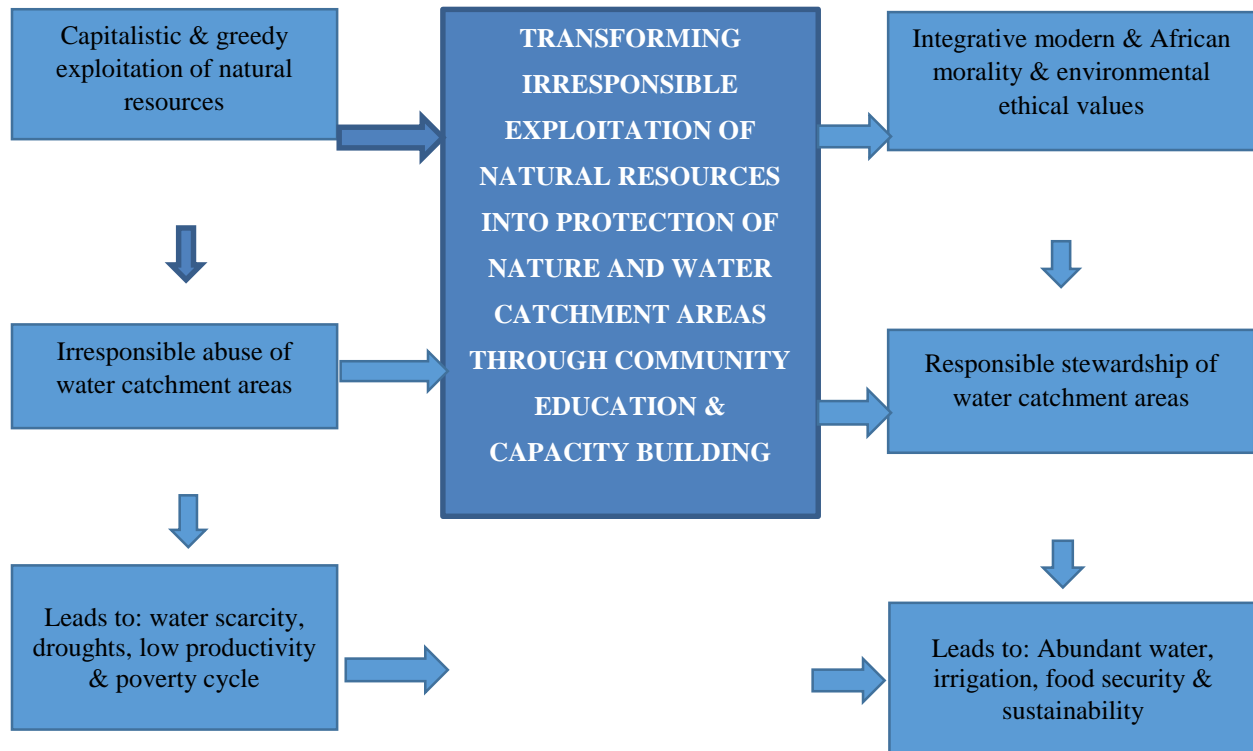
“The European explorers came to explore Africa but did not get time to study African religion. As a result, they misinformed the West about African religious background and Considered Africans irreligious. Some reported that Africans were primitive and underdeveloped even in matters of religion.” (Marete, no date)

However, this goes beyond misinterpretation and misrepresentation of African ways of life to the outside world, as it relates to the Africans misunderstanding and misrepresenting their own religious ways of life. This means that in order to acknowledge and apply the constructive aspects of African religious environmentalism regarding protection of water catchment areas, there is need to Africanize the young Africans. This can be done through community education and capacity building training on the African moral and ethical values relating to exploitation and harvesting of natural resources, especially around the water catchment areas. Responding to a follow-up interview question, one of the respondents gave the following qualitative information:

“African indigenous people knew, worshiped, and respected God (Murungu) more deeply than the contemporary young generation of Christians or Muslims. Christianity or Islam does not have a problem in themselves, but the young generation is at the cross-roads. They have received education and culture of the western knowledge in their heads, but they have African physical body. There is disconnect between the received western knowledge systems and the physical identity of the young Africans. This makes majority of them to have superficial Christianity or Islam, while deep inside there is vanity, hypocrisy and ethical-moral decay in social, environmental, economic and other aspects of community life. This needs to be transformed through community education to cultivate self-identity and responsible living with nature and other people.”

Looking at the above information, there was a question on whether there can be a truly African Christianity or African Islam, depicting the African deep reverence for God and practiced in daily responsible, accountable and integrity with nature and fellow human beings. This can inform responsible stewardship of the environment and protection of the water catchment areas toward poverty reduction and sustainable community development. The above qualitative data was translated into the following framework for transforming the practice of protecting the environment and water catchment areas:

**Figure 2: Transforming destructive exploitation of natural resources around water catchment areas**



*Source: Field data, 2016.*

From the above figure, the way the community members perceived socioeconomic needs necessitating exploitation of environmental resources need to be transformed in order to achieve sustainability. Community education and capacity building training can be used to cultivate awareness and skills necessary to responsibly protect the environment and water catchment areas. This way, people can be able to relate and be at peace with nature rather than competing and fighting with it in the contemporary capitalistic and individualistic tendencies.

### Conclusion and Recommendations

The study concluded that while the challenges facing contemporary efforts to conserve the environment and protect water catchment areas are global in scope, specific efforts can be taken to achieve sustainability. The challenges of poverty and ignorance were catalyzed by the modern religious teachings on desire for quick or cheap blessings. This cultivates a sense of carelessness and moral disconnection between human socioeconomic efforts and responsible stewardship or management of natural resources for intergenerational development and wellbeing. While such activities as farming, irrigation, grazing and

planting of commercial trees are vital for economic development, conscious decisions and actions need to be taken to ensure environmental sustainability and protection of water catchment areas. The religious ethical values of acknowledging that God - the creator (Murungu - Mumbi) is the one who created the universe, natural resources and people who are supposed to responsibly take care of creation are important in achieving environmental sustainability in

Meru and Africa at large. There is need for conscious efforts to instill the religious-ethical values of responsible hard work, environmental stewardship, transparency and accountability in exploiting natural resources in order to achieve socioeconomic sustainability. Therefore, the paper recommends further study and action on religious ethical stewardship of water and environmental resources toward sustainable development.

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